

WHAT IS CLAIMED IS:

1. A method for attaching one or more optical fibers to a retaining device, the method comprising:

applying a fluid to a through hole in a retaining device;

disposing an optical fiber proximate an end of said through hole;

developing in said fluid a differential pressure across said through hole;

drawing a portion of said optical fiber into said through hole using a force associated with said differential pressure.

2. The method of claim 1, wherein said developing includes:

applying a vacuum to said fluid on an opposite end of said through hole.

3. The method of claim 1, wherein said developing includes:

applying a pressure to said fluid on said end of said through hole.

4. The method of claim 1, wherein said fluid is a compressible fluid.

5. The method of claim 4, wherein said fluid is air.

6. The method of claim 1, wherein said fluid is an incompressible fluid.

7. The method of claim 6, wherein said fluid is water.

8. The method of claim 1, wherein said retaining device is a capillary tube.

9. The method of claim 1, further comprising:

applying said fluid to a second through hole in said retaining device;

disposing a second optical fiber proximate an end of said second through hole;

developing said differential pressure in said fluid across said second through hole;

drawing a portion of said second optical fiber into said second through using a force associated with said differential pressure.

10. The method of claim 9, wherein said retaining device is a multi-fiber array substrate.

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11. The method of claim 10, wherein said multi-fiber array substrate is an array of capillary tubes.

12. The method of claim 1, further comprising:

stripping a coating on said optical fiber revealing a stripped portion of said optical fiber, wherein said stripped portion of said optical fiber is said portion of said fiber drawn into said through hole.

13. The method of claim 12, further comprising:

sizing a diameter of said through hole to prevent an unstripped portion of said optical fiber from being drawn into said through hole under said force of said differential pressure.

14. The method of claim 1, wherein said through hole includes a conical portion and a cylindrical portion, said conical portion being positioned proximate said end of said through hole.

15. The method of claim 1, further comprising:

forming a convex surface on an end of said optical fiber to be drawn into said through hole.

16. The method of claim 15, wherein said forming includes:

cleaving said end of said optical fiber; and
heating said end to form said convex surface.

17. A system for attaching one or more optical fibers to a retaining device, the system comprising:

a fluid in communication with a through hole in the retaining device; and
a means for developing in said fluid a differential pressure across said through hole, said differential pressure providing a force for drawing a fiber into said through hole.

18. The method of claim 17, wherein said fluid is a compressible fluid.

19. The method of claim 18, wherein said fluid is air.

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20. The method of claim 17, wherein said fluid is an incompressible fluid.

21. The method of claim 20, wherein said fluid is water.

22. The method of claim 1, wherein the retaining device is a capillary tube.

23. The method of claim 1, wherein the retaining device is a multi-fiber array substrate.

24. The method of claim 23, wherein said multi-fiber array substrate is an array of capillary tubes.

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